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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/728,489

12/05/2003

Frans Lodewijk Plantenga

ACH2976 US

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04/24/2006

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EXAMINER

DOUGLAS, JOHN CHRISTOPHER

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/728,489 | Applicant(s) PLANTENGA ET AL. | |
| | Examiner John C. Douglas | Art Unit 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: the last 10 lines of the claim appear to be the exact same language as the previous 10 lines and appears to be a misprint. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 1764

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark (US 5100885) in view of Schindler (US 4414141).

5. With respect to claim 1, Clark discloses a process for the hydroconversion of a heavy hydrocarbon feed in the presence of a catalyst mixture of two catalysts that each contain Groups VIB and VIII metals on a porous inorganic support and where the second catalyst has an average pore diameter of 20 nm (see Clark, column 7, lines 67-68, column 9, lines 60-68, column 10, lines 21-25 and 47-51, and column 11, lines 3-15).

Clark does not disclose where the first catalyst has a surface area of at least 100 m²/g, a total pore volume of at least 0.55ml/g, at least 50% of the total pore volume in pores with a diameter of at least 20 nm and 10-30% of the total pore volume in pores with a diameter of at least 200 nm and where the second catalyst has a surface area of at least 100 m²/g.

However, Schindler discloses a catalyst with a surface area of 125 m²/g, a total pore volume from 0.75 to 0.95 cc/g, about 60% of the total pore volume in pores with at least 25 nm (column 1, Table, where the minimum values of porosity were used) and 21% of the total pore volume in pores with a diameter of at least 150 nm (column 1,

Art Unit: 1764

Table, where the max levels of porosity were used) (see Schindler, column 1, lines 16-32, and Table).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Clark to include a catalyst with a surface area of $125 \text{ m}^2/\text{g}$, a total pore volume from 0.75 to 0.95 cc/g, about 60% of the total pore volume in pores with at least 25 nm and 21% of the total pore volume in pores with a diameter of at least 150 nm in order to improve hydrotreating activity and catalyst life.

6. With respect to claim 2-4, Clark in view of Schindler disclose everything in claim 1 (see paragraph 5) and Clark discloses a graded system of different types of catalyst and where the second catalyst has an average pore diameter of 20 nm, about 3 to about 22 wt% of a Group VIB metal component, about 0.4 to about 8.0 wt% of a Group VIII metal component, and a phosphorus component (see Clark, column 2, lines 38-53, column 10, lines 21-25, and column 11, lines 3-20, 36-41, and 46-51).

Clark does not disclose that the porous inorganic carrier has at least 3.5 wt% silica and that the catalyst has a surface area of at least $150 \text{ m}^2/\text{g}$.

Schindler discloses a catalyst with an alumina support including up to 10 wt% silica and a surface area between 150 to $300 \text{ m}^2/\text{g}$ (see Schindler, column 1, lines 56-60).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Clark to include a catalyst with an alumina support including up to 10 wt% silica and a surface area between 150 to 300 m²/g in order to improve hydrotreating activity and catalyst life.

7. With respect to claim 5, Clark discloses where 60 to 90 % of the feed boils above 1000 degrees F, where the feed contains about 1 to about 10 wt% sulfur, and where the feed contains 22 wt% Ramscarbon (see Clark, column 7, lines 59-63, column 8, lines 10-11, and column 15, Table III).

8. With respect to claim 6, Clark discloses where the process is carried out in an ebullated bed (see Clark, column 9, lines 45-48).

9. With respect to claim 7, Clark discloses a catalyst mixture of two catalysts that each contain Groups VIB and VIII metals on a porous inorganic support and where the second catalyst has an average pore diameter of 20 nm (see Clark, column 9, lines 65-68, column 10, lines 21-25 and 47-51, and column 11, lines 3-15).

Clark does not disclose where the first catalyst has a surface area of at least 100 m²/g, a total pore volume of at least 0.55ml/g, at least 50% of the total pore volume in pores with a diameter of at least 20 nm and 10-30% of the total pore volume in pores with a diameter of at least 200 nm and where the second catalyst has a surface area of at least 100 m²/g.

However, Schindler discloses a catalyst with a surface area of $125 \text{ m}^2/\text{g}$, a total pore volume from 0.75 to 0.95 cc/g, about 60% of the total pore volume in pores with at least 25 nm (column 1, Table, where the minimum values of porosity were used) and 21% of the total pore volume in pores with a diameter of at least 150 nm (column 1, Table, where the max levels of porosity were used) (see Schindler, column 1, lines 16-32, and Table).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the catalysts of Clark to include a catalyst with a surface area of $125 \text{ m}^2/\text{g}$, a total pore volume from 0.75 to 0.95 cc/g, about 60% of the total pore volume in pores with at least 25 nm and 21% of the total pore volume in pores with a diameter of at least 150 nm in order to improve hydrotreating activity and catalyst life.

10. With respect to claims 8-10, Clark in view of Schindler disclose everything in claim 7 (see paragraph 9) and Clark discloses a graded system of different types of catalyst and where the second catalyst has an average pore diameter of 20 nm, about 3 to about 22 wt% of a Group VIB metal component, about 0.4 to about 8.0 wt% of a Group VIII metal component, and a phosphorus component (see Clark, column 2, lines 38-53, column 10, lines 21-25, and column 11, lines 3-20, 36-41, and 46-51).

Clark does not disclose that the porous inorganic carrier has at least 3.5 wt% silica and that the catalyst has a surface area of at least $150 \text{ m}^2/\text{g}$.

Art Unit: 1764

Schindler discloses a catalyst with an alumina support including up to 10 wt% silica and a surface area between 150 to 300 m²/g (see Schindler, column 1, lines 56-60).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Clark to include a catalyst with an alumina support including up to 10 wt% silica and a surface area between 150 to 300 m²/g in order to improve hydrotreating activity and catalyst life.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hensley, Jr. (US 4225421); Dai (US 5308472); Hamner (US 3887455); Mahoney (US 4526675); and Wilson (US 3898155).

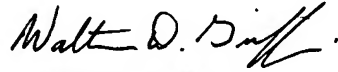
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCD


Walter D. Griffin
Primary Examiner